

Accelerating tooth movement with platelet-rich plasma

Submission date 18/08/2024	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 27/08/2024	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 27/08/2024	Condition category Oral Health	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

This study aimed to evaluate the effectiveness of platelet-rich plasma (PRP) in accelerating orthodontic tooth movement and reducing treatment duration.

Who can participate?

Patients aged 18 to 25 years with anterior teeth crowding.

What does the study involve?

Patients were randomly assigned to either the PRP group or the control group. The PRP group received PRP injections at 0, 7, and 14 days, while the control group received standard orthodontic treatment without additional interventions.

What are the possible benefits and risks of participating?

This study will evaluate the efficiency of using PRP injection to accelerate orthodontic tooth movement. There is a risk of not achieving optimal results in some cases but the study team can manage these cases with alternative methods.

Where is the study run from?

Tishreen University (Syria)

When is the study starting and how long is it expected to run for?

November 2021 to August 2023

Who is funding the study?

Damascus University (Syria)

Who is the main contact?

Dr May Alel, drmayakel@gmail.com

Contact information

Type(s)

Public, Scientific, Principal investigator

Contact name

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Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

Nil known

Study information

Scientific Title

Enhancing orthodontic treatment efficiency with platelet-rich plasma: a randomized controlled trial

Study objectives

Can platelet-rich plasma (PRP) accelerate orthodontic tooth movement?

Ethics approval required

Ethics approval required

Ethics approval(s)

approved 07/12/2021, Damascus University ethics committee (MazzeH Highway, Damascus, -, Syria; +963 (0) 113341864; manager@hcsr.gov.sy), ref: 22486

Study design

Comparative interventional randomized controlled study

Primary study design

Interventional

Study type(s)

Quality of life, Treatment, Efficacy

Health condition(s) or problem(s) studied

Anterior teeth crowding

Interventions

Patients were randomly assigned to either the PRP group or the control group. The PRP group received PRP injections at 0, 7, and 14 days, while the control group received standard orthodontic treatment without additional interventions.

Intervention Type

Procedure/Surgery

Primary outcome(s)

Little's Irregularity Index: Dental models were obtained at four key stages: initial (T0), 5 weeks after beginning treatment (T1), 8 weeks into treatment (T2), and 10 weeks into treatment (T3). The Little's Irregularity Index was calculated with precision using a digital caliper to measure the distances between the contact points of the six anterior maxillary teeth.

Key secondary outcome(s)

The duration of the orthodontic treatment was recorded in months, starting with the bonding of 0.022-inch brackets and concluding with the application of a 0.017 x 0.025-inch stainless steel archwire.

Completion date

23/08/2023

Eligibility**Key inclusion criteria**

1. Eligible participants were individuals aged 18 to 25 years
2. The study focused on patients with anterior teeth crowding ranging from 3 to 6 mm
3. A prerequisite for inclusion was the maintenance of excellent oral hygiene and periodontal status
4. Candidates with no prior orthodontic treatment history were included

Participant type(s)

Healthy volunteer

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Upper age limit

25 years

Sex

All

Total final enrolment

40

Key exclusion criteria

1. Individuals with any systemic medical conditions were not considered for the study
2. Excluded were patients with dental anomalies in tooth size or shape
3. The study did not include patients with skeletal discrepancies in the vertical, transverse, or anteroposterior dimensions
4. Those currently taking anti-inflammatory medications were also excluded from participation

Date of first enrolment

01/01/2022

Date of final enrolment

01/01/2023

Locations

Countries of recruitment

Syria

Study participating centre

Tishreen University

Faculty of Dental Medicine

Department of Orthodontics

Latakia

Syria

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Sponsor information

Organisation

Damascus University

ROR

<https://ror.org/03m098d13>

Funder(s)

Funder type

University/education

Funder Name

Damascus University

Alternative Name(s)

University of Damascus, , DU

Funding Body Type

Government organisation

Funding Body Subtype

Universities (academic only)

Location

Syria

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be available on request from Dr May Alel (drmayakel@gmail.com) and in the publication related to it after the end of the research.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes